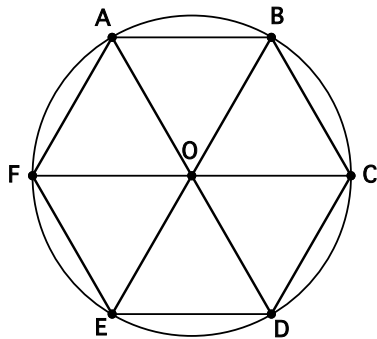


For each question, you need to find the answer and show your work. Each problem is worth 3 points: one for the correct answer, and two for showing your work. For some problems, you may just need to write out how you know you have the correct answer.

The figure shows a regular hexagon inscribed in circle O . The radius of the circle is 5 cm. Use the figure to answer questions 1-3.

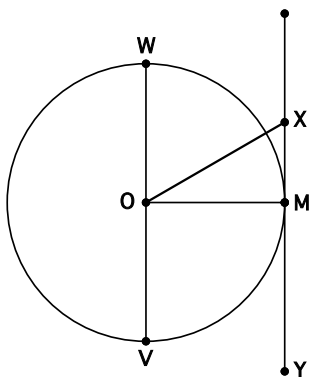


1. What is the length of \widehat{BD} ? How do you know?

2. What is the measure of \widehat{AEC} ? How do you know?

3. What is the measure of \widehat{BC} ? How do you know?

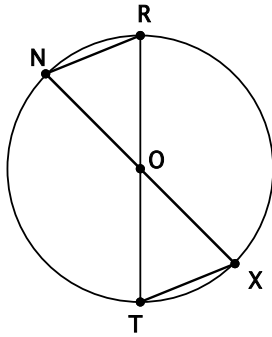
\overline{XY} is tangent to circle O at point M . The length of \overline{WV} is 30 mm and \overline{XM} is 10 mm. Use the figure to answer questions 4 and 5. (Not drawn to scale)



4. What is the length of \overline{OM} ? How do you know?

5. What is the length of \overline{OX} ? How do you know?

In the figure below, \overline{NX} and \overline{RT} are diameters of the circle. $\triangle NOR$ and $\triangle TOX$ are equilateral triangles. The length of \overline{RT} is 12 cm. Use the figure to answer questions 6-8. (Not drawn to scale)

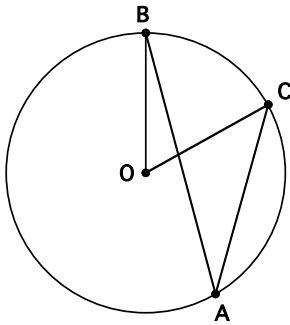


6. What is the measure of \widehat{TX} ?

7. What is the measure of \widehat{XRT} ?

8. What is the length of \widehat{NRT} ?

9. The $m\angle BOC = 68^\circ$. Find the $m\angle BAC$. How do you know your answer is correct? (Not drawn to scale)



10. Refer to the figure in question 9. What is the length of \widehat{CAB} if the radius is 4 in?

Open-Ended Question: You may answer on this sheet or on a separate sheet. Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!

Thirty-five out of 80 vehicles crossing a certain intersection during a five-minute period were SUVs. This data is being collected in a circle graph (not shown).

A. What is the ratio of SUVs to all vehicles? How can you show that ratio as a decimal? How can you show that decimal as a percent?

B. How many degrees are there in the measure of a circle? What is 43.75% of 360° ?

C. What will be the measure of the central angle in the section of the graph that represents the ratio of SUVs to all vehicles? Complete the circle graph.

